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Engineering Research Grant Awarded to Walter J. Bornhorst

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JOE McLAUGHLIN
DIRECTOR, GENERAL PUBLICITY

DAYTON, Ohio, April 2, 1968 --- Walter J. Bornhorst at the University of Dayton has just received an Engineering Research Grant from the National Science Foundation. The grant is for initiating a research program on the energy-conversion processes in muscles.

This research will involve the application of engineering concepts to muscle and will attempt to explain the mechanism enabling the muscle to convert food energy into mechanical work. This approach to muscle research is novel in that thermodynamic concepts are used. Thermodynamics is a very general science dealing with the relationships among heat, work, and energy and as such is directly applicable to this investigation. An initial study, supported by the University of Dayton, indicated that further effort in applying the principles of thermodynamics might reveal new and superior methods for direct-energy conversion outside the body. Previous muscle research, based primarily on medical and biological concepts, has provided much valuable information, but has not contributed significantly to the understanding of the energy-conversion processes in muscle.

A better understanding of muscle contraction also may contribute to the solution of many problems associated with muscular diseases. Heart failure, of course, is the most prominent. Dr. Bornhorst recently received additional support for his research from the Dayton-Miami Valley Chapter of the American Heart Association. He hopes, however, not only to direct the results of his efforts to heart disease, but also to provide valuable insight to other muscle ailments such as muscular dystrophy.

Dr. Bornhorst joined the University of Dayton in June, 1967, and holds a joint appointment with the Research Institute and with the Department of Mechanical Engineering. He received a B.S. in Mechanical Engineering from the University in 1963 and an M.S. and Ph.D. from the Massachusetts Institute of Technology in 1964 and 1966 respectively.

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